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YUCCA MOUNTAIN – REQUEST FOR ADDITIONAL INFORMATION – VOLUME 2,
CHAPTER 2.1.1.6, SET 2 (DEPARTMENT OF ENERGY’S SAFETY ANALYSIS REPORT
SECTIONS 1.2 and 1.9) – Identification of Systems, Structures and Components

Reference: Ltr, Jacobs to Williams, dtd 07/20/09, “Yucca Mountain - Request For
Additional Information – Volume 2, Chapter 2.1.1.6, Set 2 (Department of
Energy’s Safety Analysis Report Sections 1.2 and 1.9)”

The purpose of this letter is to transmit the U.S. Department of Energy’s (DOE) response to one of the nine Requests for Additional Information (RAI) identified in the above-referenced letter. The response is provided in a separate enclosure. DOE previously submitted RAI numbers 2, 6, 7 and 8 on August 13, 2009. DOE expects to submit the remaining responses to the RAIs in Set 2 on or before October 30, 2009.

There are no commitments in the enclosed RAI response. If you have any questions regarding this letter, please contact me at (202) 586-9620, or by email to jeff.williams@rw.doe.gov.

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OTM: SAB-1069

Enclosure:
Response to RAI Volume 2, Chapter 2.1.1.6, Set 2, Number 1



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RAI Volume 2, Chapter 2.1.1.6, Second Set, Number 1:

For procedural safety controls pertaining to the important to safety (ITS) heating, ventilating and air conditioning (HVAC) systems in the Canister Receipt and Closure Facility (CRCF), Wet Handling Facility (WHF), and Emergency Diesel Generator Facility (EDGF):

- Explain how the use of the procedure safety controls (SAR Sections 1.2.4.4.4 and 1.2.5.1.4) in CRCF and WHF, will ensure that the HVAC systems, including the fan coil unit and air cooled condensing unit for the electrical and battery rooms (SAR Figure 1.2.4-104 on page 1.2.4-323 for the CRCF), will be available during waste handling operations. DOE refers to the supply fan as part of the fan coil unit on SAR page 1.2.4-58.
- Explain how the safety function is being met for the ITS HVAC subsystems in the EDGF without a procedural safety control (SAR page 1.2.8-26) during the waste handling operation in CRCF and/or WHF.

DOE identifies one procedural safety control pertaining to the HVAC systems in the CRCF and the WHF specifying that, "... operating procedures will identify the required status of ITS confinement HVAC exhaust fans and the ITS supply and exhaust fans for the ITS electrical and battery rooms ... as a condition for commencing waste handling operations..." on SAR pages 1.2.4-64 and 1.2.5-61 for the CRCF and WHF, respectively.

1. RESPONSE

There are two procedural safety controls (PSCs) addressing heating, ventilation, and air-conditioning (HVAC) system availability. PSC-7 addresses HVAC system and associated subsystem availability in the Canister Receipt and Closure Facility (CRCF) and Wet Handling Facility (WHF). PSC-8 addresses HVAC system availability in the Emergency Diesel Generator Facility (EDGF) by ensuring that the important to safety (ITS) diesel generator and all supporting subsystems are available. These PSCs are based on the fault tree analysis which models the ITS HVAC subsystems in the CRCF, WHF, and EDGF.

SAR Table 1.9-10 lists the PSCs, along with the facility and associated structures, systems, and components (SSCs) to which they are applicable. PSC-7 directly requires HVAC system availability by stating "One train of HVAC is required to be operating and the second train is required to be in standby before commencing waste handling operations." The SSCs to which this PSC applies in the CRCF and WHF ITS HVAC systems include:

- The ITS exhaust subsystem serving ITS tertiary/secondary confinement areas
- The ITS HVAC subsystems serving ITS electrical equipment and battery rooms.

Consequently, the systems and subsystems supporting the ITS HVAC filtration function are addressed; this extends to the electrical distribution equipment necessary for continued operation

ENCLOSURE 1

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of the ITS HVAC components. This group of SSCs also includes the fan coil unit and air cooled condensing unit for the electrical and battery rooms.

PSC-8 ensures ITS HVAC system availability in the EDGF by requiring that “Before commencing waste handling operations, two ITS diesel generators are aligned to start on detection of undervoltage. Following the start of the diesel generators, the operator manages the operation of the ITS diesel generators to ensure continuous operation of a train of the surface nuclear confinement HVAC system, ITS exhaust subsystem serving ITS confinement areas and ITS subsystems serving ITS electrical and battery rooms in each of the waste handling facilities.” The EDGF ITS HVAC system is a support system necessary for the availability of the ITS diesel generators and is covered by this PSC.

As shown in SAR Table 5.10-1, the implementation of these PSCs is anticipated to take the form of a limiting condition for operation. The limiting conditions for operation selected for the repository are expected to be specific restrictions on geologic repository operations area operations that establish the minimum complement of ITS SSCs that must be confirmed to be operational at the initiation of, and during, the various modes of repository operation.

2. COMMITMENTS TO NRC

None.

3. DESCRIPTION OF PROPOSED LA CHANGE

None.